knowledge of methods. To force a student to invent methods does stimulate indeed observation, but it is a very great waste of time on the part of most students. Between this loss of stimulus to original observation and the loss of time, the instructor is very puzzled how to proceed.

Prof. Dodge of Rochester University in the guide just published has attempted to solve the problem by a new method of direction. The laboratory guide here noticed gives the student some few directions as to methods of dissection and methods of procedure, but beyond this gives him practically no information in regard to his specimens. By a series of skilfully arranged questions it forces the student to make his own observations and to make them in the right direction. Instead of directing the student to observe a certain fact a question is asked which leads him to hunt for a solution, and the result is independent observation. This method of study renders the text book of no value unless the student has the specimen directly in front of him, for there is no possibility of answering these questions in any other way than from the specimen.

The method of teaching here planned is certainly an ideal one and has been quite successfully carried out by Prof. Dodge. It is true that the questions given are sometimes entirely beyond the possibility of the student's solution, and it must also be recognized that this method is one designed to occupy a very great amount of time. Some of the problems which are set before the student will require days for solution, and others have not yet been settled by the observation of scientific investigators. It will therefore take a great amount of time to complete the outline given, for the book is a comprehensive study of biology, including the study of the animal and vegetable cell, on the side of animals, the study of the sponge, hydra, campanularian hydroid, star fish, earthworm, the lobster, locust, clam, and the frog; and on the side of the vegetable kingdom, green felt, stone work, rock weed, mould, mushrooms, liverworts, ferns and flowering plants. Whether the student in the time allotted to the study of general biology even in our best colleges will be able to complete the list by the method outlined in the guide is doubtful, but there can be little doubt that the method of teaching adopted by Prof. Dodge in this book is an ideal one, and for stimulating observation and at the same time enabling the student to do the most work in the smallest amount of time, there is perhaps no laboratory guide in biology yet published which succeeds as well as the one here noticed.

H. W. CONN.

WESLEYAN UNIVERSITY.

Le Grisou [Fire Damp], par H. LE CHATELIER, Ingénieur en Chef des Mines.—Professeur à l'École nationale des Mines.—Paris, Gauthier Villars et Fils, 1894. Pp. 187. Broché 2 fr 50, Cartonné 3 fr.

The rapid extension of technical scientific knowledge, and the increasing call for specialists in every department, is best shown in the literature of the past few years. The discussion of general topics within the limits of a single volume is now possible only in the most elementary works designed for beginners and for the lower classes of our colleges. We have in place of the general text book a rapidly increasing library devoted to special subjects, each presented by specialists in their own field and each treating of some small part of the great sciences formerly considered as a unit. The present volume is of this nature, and, coming from the hand of an engineer of wide reputation, will be of great service to all advanced students of mining whether still within the college confine or employed in the active practice of their profession. 'Fiery' mines are common in our coal fields, and many mines long worked without suspicion of danger, or with

carelessness engendered by delayed casualty, suddenly become the scenes of disaster and great loss of life. M. Le Chatelier has brought together a great mass of facts from many sources and has so presented them as to place them conveniently within reach of all workers in the field. Part I. treats of the nature and production of fire damp, its composition, manner of explosion, its limit of inflammability, and other properties, physical and chemical. Part II. is highly practical and is devoted to the consideration of the immediate cause of accidents, with precautions against the same, the use of safety lamps and of safety explosives, etc. To those desiring a more extended treatment of any of these subjects, or those wishing to consult original papers, the very complete Bibliography which is given at the end of the work will be of great service, particularly as a guide to continental publications.

Charles Platt.

Philadelphia.

At the North of Bearcamp Water.—Chronicles of a Stroller in New England from July to December.—By Frank Bolles.—Houghton, Mifflin & Co., 16 mo. pp. 297.

Any one who will go afield in the rain for the purpose of seeing how the wet birch trees look, or who will stay through a stormy night on a mountain top for the sake of the scenery, has certainly a lively interest in nature. The late Frank Bolles had all of this interest and in addition a kindly sympathy with every wandering creature. In his last book, *At the North of Bearcamp Water*, one does not find as many paragraphs suitable for quotations on a daily calendar as would occur in a volume of Thoreau, but his description of a July afternoon when "The air was full of quivering heat and hazy midsummer softness," has all the strength of beauty and truth.

The book particularly describes nature in the vicinity of Chocorua mountain, but there are also chapters on Old Shag, Bear and other White Mountain peaks. In these accounts of scenery of deer, foxes, birds and trees there is an evident truthfulness, as real as the objects themselves. The mass of detail brought into some of these chapters is surprising, and a frog did not jump across the path without being made to play his part in the account of the day's ramble.

Among the most interesting pages are those devoted to 'A Lonely Link,' and to 'A Night Alone on Chocorua.' Mr. Bolles had his red roofed cottage by the lake and describes the squirrels, muskrats, porcupines, and many birds that were his neighbors. The narrative is peaceful in tone, as restful as a quiet ramble in the woods, and those who wish to be transported in spirit to pleasing natural scenes will do well to accept Mr. Bolles as guide.

W. T. Davis.

NOTES.

THE BOTANICAL SOCIETY OF AMERICA.

The Botanical Society of America was organized during the meeting of the American Association for the Advancement of Science at Brooklyn, N. Y., in August, 1894. The following extracts from the Constitution adopted are of general interest.

"There may be two classes of members—active and honorary. Only American botanists engaged in research, who have published work of recognized merit, shall be eligible to active membership. Before the 1st of January following his election, each active member shall pay into the treasury of the Society a fee of twenty-five dollars ($25), and thereafter annual dues to the amount of ten dollars ($10), payable before the 1st of January."

"Candidates for active membership shall be recommended by three active members of the Society not members of the Council, who shall certify that the candidate is eligible under the provisions of the Constitution. These nominations shall be placed in